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A New Species of *Pikonema* Ross (Hymenoptera, Tenthredinidae) from Japan

By

Aleksej G. ZINOVJEV

Zoological Institute, Russian Academy of Sciences,
St. Petersburg, 199034, Russia

Abstract *Pikonema fujiense* n. sp., closely related to *Pikonema insigne* HARTIG, is described from Japan (Honshu). The larvae of the unidentified *Pikonema* sp., very similar to those of *P. insigne* are recorded from Kunashiri Island. The relationships between species of *Pikonema* are shortly discussed.

Introduction

The sawfly genus *Pikonema* (Hymenoptera, Tenthredinidae) was erected by ROSS (1937) for three Nearctic species: *P. dimmockii* CRESSON, *P. alaskense* ROHWER, and *P. ruralis* CRESSON. These species are associated with spruce, but larva of the last species is yet unknown) (ROSS, 1937, 1938; SMITH, 1979). In this paper, *Pikonema* is regarded as involving all species of the subtribe Nematinae (VIKBERG, 1982) feeding on conifers. Traditionally the palaearctic species of this genus are placed in *Pachynematus* KONOW, but *P. insigne* HARTIG was considered also a species of *Nematus* PANZER, or even *Pristiphora* LATREILLE (BENSON, 1958; MUCHE, 1974; HELLÉN, 1974, 1975; BENEŠ & KŘÍSTEK, 1979, etc.). On the other hand, some *Pristiphora* species from the subgenus *Lygaeonematus* KONOW are also sometimes included in *Pikonema* (VIITASAARI & VIKBERG, 1985; ZHELOCHOVTSEV, 1988). By the structure of the penis valves and saw (tangium of radix with pores), all such species (*P. leucopodia* HARTIG, *P. nigriceps* HARTIG, and *P. piceae* ZHELOCHOVTSEV) should run to the subtribe Pristiphorina, as defined by VIKBERG (1982). They can be considered to represent a separate species-group, characterized by the larvae with small, reduced pseudopods on the 8th abdominal segment and by the peculiar colour pattern (evidently determined by the structure of the fat body).

The species of *Pikonema* can be usually distinguished from other species of Nematina by having claws with short inner tooth combined with elongated tarsi of the hind legs, and by the form of the sawsheath with apical emargination; however, the monophyly of the whole genus remains somewhat uncertain. The palaearctic species of this genus can be separated into three distinctive species-groups. The name *Larinematus* was proposed by ZHELOCHOVTSEV (1988) for *imperfectum*-group associated with *Larix*. This group, involving two described species (*P. imperfectum* ZADDACH and *P. itoi* OKUTANI), is distinguished by the form of the sawsheath and saw, and also

by the cocoons of larvae with double walls (similar cocoons are known only for species of *Nematus* close to *N. ferrugineus* and *N. caeruleocarpus*.)

Two other groups of *Pikonema* are associated with *Picea* (or maybe also with *Abies*). The *montanum*-group with three related species (*P. montanum* ZADDACH, *P. pallescens* HARTIG, and *P. styx* BENSON) is also defined by apomorphic characters: peculiar shape of the short saws and presence of the extra-limital moulting of larvae, or "type A" according to KONTUNIEMI (1965) (ZINOVJEV, 1991).

The *scutellatum*-group includes two species from Europe and Siberia (*P. scutellatum* HARTIG and *P. insigne* HARTIG). They are very similar to the nearctic species by having longer saws and sawsheath, but differ in the larva having long setae on three annulets (A, B, and C²) of the abdominal segments and *P. insigne* by having distinct pseudocerci (LORENZ & KRAUS, 1957; LINDQUIST & MILLER, 1972).

In this paper, a third species of this species-group, *Pikonema fujiiense* n. sp., is described from Japan on the basis of a single female collected by S. TSUYUKI, and I cordially thank Dr. A. SHINOHARA for the loan of this very interesting sawfly.

The measurements were taken with the aid of an ocular micrometer (the scale of 180 units=18 mm; at the largest magnification one unit corresponds to 0.014 mm). The length (or width) of any structure is measured as its greatest visible length, but disregarding parts of antennal or tarsal segments that may be hidden in articulation.

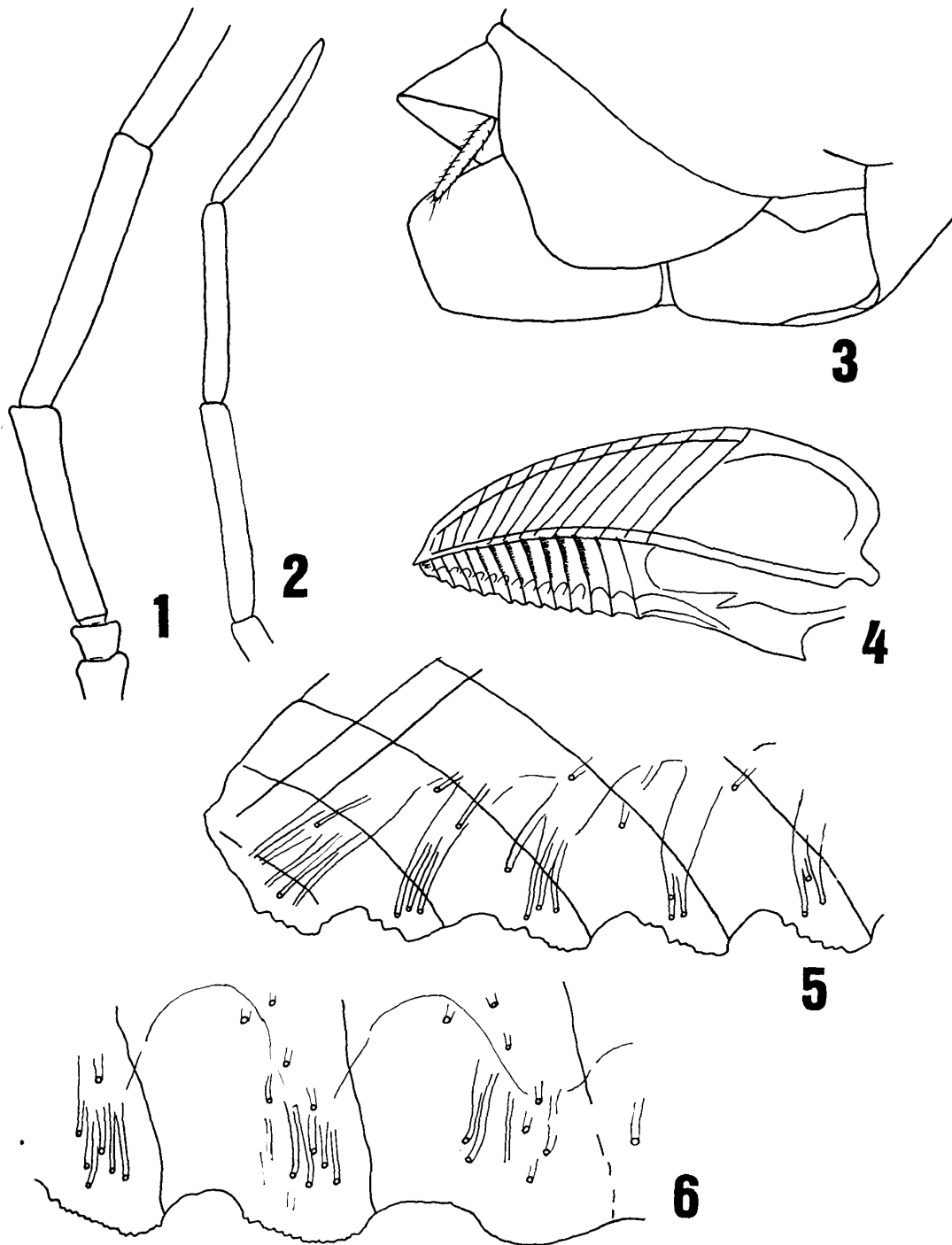
Pikonema fujiiense n. sp.

(Figs. 1–6)

Female (holotype). Body almost entirely black; only palpi, labrum, and apical margin of clypeus brownish; fore and middle tarsi and tibiae, apical part of fore femur from the upper side pale brown; hind leg black with trochanter, trochantellus and apical margin of coxa white; 2–4th abdominal tergites with whitish, very small lateral flecks just before pale stigma. Wings subhyaline with black pterostigma and venation. Mesepisternum with pale hairs, the upper sides of the head and thorax with dark hairs.

Head in dorsal view slightly narrowed behind eyes; postocellar area 1.8 times as broad as long, with very fine and short interocellar furrow; postocellar furrow indistinct; lateral furrows deep and short. Frontal area not clearly defined. Median fovea deep, triangular, separated from the frontal area. Clypeus emarginate. Malar space 1.5 times longer than the diameter of front ocellus. Mouth parts normal. Antennae almost as long as length of thorax and abdomen together, 4 times longer than the head width.

Front lobes of mesonotum flattened, medial suture shallow, obsolescent behind. Fore wing with C not swollen at apex, Sc received in R just before the origin of M, 2m–cu receiving cell 1RS but very close to cross-vein r–m. On the hind wing anal cell with a petiole 1.3 times as long as cu–a. Hind tibia with a distinct longitudinal groove on the outer side; hind tarsus slightly shorter than tibia, basitarsus as long as



Figs. 1-6. *Pikonema fujiense* n. sp., ♀, holotype. — 1, Base of antenna; 2, apex of antenna; 3, apex of abdomen in lateral view, hairs omitted; 4, lancet and lances; 5, apex of the saw (lancet); 6, basal part of the saw.

three following tarsal segments together; hind tibial spurs 0.48 of the basitarsus length. Claws with small inner tooth.

Abdomen long and subcylindrical. Sawsheath in lateral view truncate at apex; in dorsal view long, subparallel sided, narrower behind; apical emargination as a narrow slit (better visible from behind); the lateral setae near apex of sawsheath rather short and almost straight, in dorsal aspect forming an acute angle with corresponding setae on the other side of sawsheath. Cercus long, but shorter than the sawsheath. Lancet and lances as in Figs. 4–6; lances 3.2 times longer than broad; lancet (saw) with rather prominent teeth, lamnium with 14 segments, longer than radix, ctenidia are present on 9 segments, shorter than 0.5 of the segment length, 4 apical segments and the basal segment without ctenidia.

Microsculpture. Head above dull or slightly shining, with irregular fine coriaceous surface, without definite punctures. Mesonotum, including posttergite of scutellum densely punctate, with shining interspace between punctures. Front lobes on the outer sides and behind, adjacent parts of the lateral lobes; apical third of scutellum and posttergite with rather dense striation. Metascutellum smooth and shining. Mesepisternum dull, densely punctate, with dense striation between rather shallow punctures. Mesepimeron smooth and shining. Abdomen with dense transverse striation; 7–9th tergites subshining, with sparse punctures and fine coriaceous surface laterally. Sawsheath smooth and shining, with hardly visible microsculpture.

Measurements (in mm): Length 12.0; forewing length 11.0; head width 2.31; thorax width (between outer margins of tegulae) 2.40; length of antennal segments 1–9th (scape length without radicle) 0.31, 0.21, 1.26, 1.51, 1.37, 1.25, 1.19, 1.06, 1.06; longest ocular diameter: shortest ocular diameter 0.98: 0.70; malar space 0.215; distance between antennal sockets 0.175; POL: OOL: OCL 0.32: 0.46: 0.35; hind femur without trochantellus (length: width) 3.325: 0.575; hind tibia (length: apical width in lateral view) 4.15: 0.575; hind basitarsus (length: width) 1.57: 0.31; ovipositor (basal plate+sawsheath in lateral view) 2.40; sawsheath in dorsal view (length: basal width: apical width) 0.63: 0.365: 0.195; longest sawsheath hairs 0.15; cercus (length: width) 0.49: 0.07; lamnium of lancet (saw) length 1.085.

Male. Unknown.

Distribution. Japan (Honshu).

Holotype. ♀, Fuji-Rindo, Mt. Fuji, 8. VIII. 1976 (S. TSUYUKI). Deposited in National Science Museum (Nat. Hist.), Tokyo.

Host plant. Unknown, but almost certainly *Picea* or *Abies*.

Remarks. This large and black sawfly with very long abdomen and antennae most closely resembles *P. insigne* in almost all structural characters (sculpture, the shape of the sawsheath, etc.). It can be easily separated from *P. insigne* by the entirely black antennae, mainly black head, thorax, abdomen, legs, and costa of the fore and hind wings. It differs also by longer antennae, slenderer hind basitarsus, and by small differences in the saw and sawsheath.

The larvae of *P. fujiiense* are not known, but being in Kunashiri Island in late

summer of 1988, I have seen on *Picea jezoensis* a small colony of *Pikonema* larvae extremely similar to those of *P. insigne* in colour pattern. Unfortunately they were highly parasitized and rearing was not successful.

References

- BENEŠ, K., & J. KŘÍSTEK, 1979. Der gegenwärtige Stand der Taxonomie der europäischen Arten der an der Fichte lebenden Familien von Pamphiliidae, Diprionidae und Tenthredinidae (Hymenoptera, Symphyta). *Acta Univ. Agric. Brno*, Ser. C (Fac. Silv.), **48**: 77–118. (In Czech.)
- BENSON, R. B., 1958. Hymenoptera (Symphyta), Subfamily Nematinae. *Handb. Ident. British Insects*, **6**, 2(c): 139–252.
- HELLÉN, W., 1974. Die Nematinen Finnlands III (Hymenoptera, Tenthredinidae). Gattung *Pachynematus* KONOW. *Notulae ent.*, **54**: 65–80.
- 1975. Die Nematinen Finnlands IV (Hymenoptera, Tenthredinidae). Gattung *Pristiphora* LATREILLE. *Ibid.*, **55**: 97–128.
- KONTUNIEMI, T., 1965. Die letzte larvale Häutung bei den Sägewespen (Hym., Symphyta) als taxonomisches Kriterium. *Ann. ent. fenn.*, **31**: 115–117.
- LINDQUIST, O. H., & W. J. MILLER, 1972. A key to sawfly larvae feeding on the foliage of spruce and balsam fir in Ontario. *Proc. ent. Soc. Ont.*, **102**: 118–122.
- LORENZ, H., & M. KRAUS, 1957. Die Larvalsystematik der Blattwespen. 339 pp. Berlin.
- MUCHE, H., 1974. Die Nematinegattungen *Pristiphora* LATREILLE, *Pachynematus* KONOW und *Nematus* PANZER (Hym., Tenthredinidae). *Dtsch. ent. Z.*, N.F., **21**: 1–137.
- ROSS, H. H., 1937. A generic classification of the Nearctic sawflies (Hymenoptera, Symphyta). *Ill. Biol. Monogr.*, **15** (2): 1–173.
- 1938. The nearctic species of *Pikonema*, a genus of spruce sawflies (Hymenoptera, Tenthredinidae). *Proc. ent. Soc. Wash.*, **40**: 17–20.
- SMITH, D. R., 1979. Suborder Symphyta. In KROMBEIN, K. V. *et al.* (eds.), *Catalog of Hymenoptera in America North of Mexico*, **1**: 3–137. Washington, D. C.
- VIITASAARI, M., & V. VIKBERG, 1985. A checklist of the sawflies (Hymenoptera, Symphyta) of Finland. *Notulae ent.*, **65**: 1–17.
- VIKBERG, V., 1982. Notes on the taxonomy and the nomenclature of some mainly Fennoscandian sawflies (Hymenoptera, Symphyta). *Notulae ent.*, **62**: 61–65.
- ZHELOCHOVTSEV, A. N., 1988. [Suborder Symphyta (Chalastogastra)]. In ZHELOCHOVTSEV, A. N., V. T. TOBIAS & M. A. KOZLOV, [Keys to the insects of the European part of the USSR. T. III, Hymenoptera, pt. 6]: 7–234. Leningrad. (In Russian.)
- ZINOVJEV, A. G., 1991. On the significance of the biological characters for classification of the sawfly subfamily Nematinae (Hymenoptera, Tenthredinidae). *Verhandlungen XII int. Symp. Entomofaun. Mitteleur.* (Kiew, 1988): 333–335.